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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,266	01/22/2002	Ki-won Choi	9898-208	6747

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EXAMINER	
NADAV, ORI	

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/055,266	CHOI, KI-WON	
	Examiner	Art Unit	
	Ori Nadav	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 44 and 46 are objected to because of the following informalities: In claim 44, the phrase "the semiconductor chip" should read "a semiconductor chip". In claim 46, the phrase "first and second circuit patterns" should read "first and second conductive circuit patterns".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification recites a first bond finger having a conductive circuit pattern connecting it to one of the solder ball pads, a second bond finger having a first wire bonding connecting it to one of the bond pads, and a second wire bonding unit connecting the first and the second bond fingers thereby connecting said one bond pad to said one solder ball pad. Therefore, there is a conductive circuit pattern between the second bond finger one solder ball pad, and a

wire bonding unit between the first bond finger and one of the bond pads. There is no support for no conductive circuit pattern between the second bond finger and any of the solder ball pads, and no wire bonding unit between the first bond finger and any of the bond pads, as recited in claims 29-31, respectively.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

Claims 28-34 and 36-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (6,707,149).

Regarding claims 28 and 43, Smith teaches in figure 5B and related text a semiconductor package comprising:

a substrate having a plurality of bond fingers 36 mounted thereon;

a semiconductor chip 38 (see figure 9) having a plurality of bond pads 42;

a plurality of solder ball pads (column 4, lines 59-60) mounted on the substrate;

a first bond finger 36 having a conductive circuit pattern connecting it to one of the solder ball pads (via wire 62 and terminals 64, 68 (see figure 9));

a second bond finger 36 having a first wire bonding connecting it to one of the bond pads 42; and

a second wire bonding unit (the vertical wire connecting some of pads 36) connecting a first and the second bond fingers thereby connecting said one bond pad to said one solder ball pad.

Smith does not explicitly state that said first bond finger is connected to said solder ball. It would have been obvious to one having ordinary skill in the art at the time the invention was made to connect said first bond finger to said solder ball in Smith's device in order to provide external connection to said one bond pad.

Regarding claims 29-31, Smith teaches in figure 5B and related text no conductive circuit pattern between the second bond finger and any of the solder ball pads, and no wire bonding unit between the first bond finger and any of the bond pads.

Regarding claims 32 and 44, Smith teaches in figure 5B and related text an encapsulant 78 for encapsulating the semiconductor chip and wire bonding units.

Regarding claims 33 and 45, Smith teaches in figure 5B and related text a solder ball connected to the one solder ball pad.

Regarding claim 34, Smith teaches in figure 5B and related text a substrate is a single layer substrate on which a printed circuit pattern is formed.

Regarding claim 36, Smith teaches in figure 5B and related text a solder mask is not formed on the added bond finger.

Regarding claim 37, Smith teaches in figure 5B and related text the second wire bonding unit is formed over the substrate.

Regarding claim 38, Smith teaches in figure 5B and related text the second wire bonding unit is formed on an outer region of the substrate on which the semiconductor chip is mounted.

Regarding claim 39, Smith teaches in figure 5B and related text the second wire bonding unit is one unit.

Regarding claim 40, Smith teaches in figure 4 the semiconductor chip 38 is attached to the substrate 28 using an adhesive 26.

Regarding claims 41-42, Smith teaches in figure 5B and related text the first bond finger is made by further extending the printed circuit pattern on the circuit and it has the same pad shape as that of the second bond finger.

Regarding claim 46, Smith teaches in figure 5B and related text the first and second printed circuit patterns each have a width that enables wire bonding to be performed thereon.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable Smith in view of Sota et al. (6,064,111).

Smith teaches substantially the entire claimed structure, as applied to claim 28 above, except a substrate is a double layer substrate.

Sota et al. teach the double layer substrate (column 7, lines 17-20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Sota et al. into the device taught by Smith in order to improve the interchangeability of the semiconductor device in the double layer substrate.

Response to Arguments

Applicant's arguments with respect to claims 28-46 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ori Nadav whose telephone number is 571-272-1660.

The examiner can normally be reached between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

O.N.
4/21/06

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PRIMARY EXAMINER
TECHNOLOGY CENTER 2800